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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,239	04/24/2000	Jiann H. Chen	80914ROL	8664

7590

11/29/2001

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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 11/29/2001

Please find below and/or attached an Office communication concerning this application or proceeding.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/558,239	04/24/00	CHEN J	80914ROL

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EXAMINER  
ZACHARIA, R

ART UNIT	PAPER NUMBER
1773	3

DATE MAILED: 10/22/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/558,239

Applicant(s)

CHEN ET AL.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it is more than one paragraph in length. Correction is required. See MPEP § 608.01(b).
2. The disclosure is objected to because of informalities such as: "hexefluoropropylene" instead of --hexafluoropropylene-- and "(CF<sub>2</sub>CF(CF<sub>3</sub>))<sub>y</sub>" instead of --(CF<sub>2</sub>CF(CF<sub>3</sub>))<sub>y</sub>-- on page 7, line 23, etc.

The applicant is requested to review the application thoroughly and make all appropriate corrections.

3. The Applicant is requested to update the first sentence in the specification to referring to the commonly assigned application filed concurrently with the instant application.

### *Claim Objections*

4. Claims 1 and 10 are objected to because of the following informalities. In claim 1, the term "(CF<sub>2</sub>CF(CF<sub>3</sub>))<sub>y</sub>" should be written --(CF<sub>2</sub>CF(CF<sub>3</sub>))<sub>y</sub>--. In claim 10, an extraneous comma (,) is added at the end of the claim. Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The phrase "between about 20,000 and 30,000" in claim 13 renders the claim indefinite because the metes and bounds of the claim are ill defined. The phrase "between  $X$  and  $Y$ ", means any value greater than  $X$  and less than  $Y$ . This phrase is definite if both  $X$  and  $Y$  are well defined. If either, or both, of  $X$  and  $Y$  are not well defined and there is nothing in the specification, prosecution history, or prior art to provide any indication as to what range is covered by the phrase, then the phrase is indefinite because it is unclear which values are to be excluded from the range and would not permit one to know what specific values below  $X$  and/or above  $Y$  if any, might constitute infringement. In the instant case, replacing the phrase with --from about 20,000 to about 30,000-- is sufficient to overcome this rejection.

Likewise, the phrase "between about 0.8 and 1" in claim 14 renders the claim indefinite. This rejection may be overcome by replacing the phrase "an average ratio of between about 0.8 and 1 to 1" with the phrase --an average ratio of about 0.8-1 to 1--.

### ***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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9. Claims 1, 2, and 4-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent 5,582,917).

Chen et al. teach a fuser member comprising substrate, an intermediate layer, and a layer comprising an interpenetrating network of a fluorocarbon copolymer with a fluorocarbon curing agent and a poly(C<sub>1-6</sub> alkyl)siloxane polymer (column 2, lines 25-36). The intermediate layer is preferably a silicone elastomer (column 6, lines 59-62), i.e. a cushion layer. Viton<sup>®</sup> A is a suitable fluorocarbon copolymer (column 4, lines 44-55 and Examples 1-4 and 7). According to the instant specification, Viton<sup>®</sup> A is a copolymer comprising 75% vinylidene fluoride and 25% hexafluoropropylene (see page 12, lines 6-10). The fluorocarbon curing agent is preferably a nucleophilic addition curing system, such as one comprising a bisphenol agent (column 4, line 66-column 5, line 15). The fluorocarbon copolymer may further contain alumina (i.e. aluminum oxide) and acid acceptor metal oxides or hydroxides, such as magnesium oxide and calcium hydroxide. In the embodiment of Example 5, 9 parts by weight of a combination of magnesium oxide and calcium hydroxide were used per 100 parts by weight of fluorocarbon copolymer. The poly(C<sub>1-6</sub> alkyl)siloxane is preferably a heat-curable silicone (column 5, lines 40-41). A preferred silicone comprises a polydimethylsiloxane having a number average molecular weight of between 20,000 and 30,000 and a polymethylsiloxane comprising monofunctional and tetrafunctional siloxane repeating units having a number average molecular weight of 1,000 to 10,000 (column 5, lines 56-65). An exemplary silicone is SFR-100 (used in the Examples of Chen et al. as well as the Examples of the instant application) which comprises a silanol- or trimethylsilyl- terminated polymethylsiloxane and is a liquid blend comprising 60-80 wt% of a difunctional polydimethylsiloxane having a number average molecular weight of about 150,000

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and 20-40 wt% of a polytrimethylsilyl silicate resin having monofunctional and tetrafunctional repeating units in an average ratio of 0.8-1 to 1 and a number average molecular weight of about 2,200 (column 5, line 66-column 4, line 11).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent 5,582,917) in view of Chen et al. (U.S. Patent 5,547,759).

Chen et al. ('971) teach a fuser member comprising substrate, an intermediate layer, and a layer comprising an interpenetrating network of a fluorocarbon copolymer with a fluorocarbon curing agent and a poly(C<sub>1-6</sub> alkyl)siloxane polymer (column 2, lines 25-36). The intermediate layer is preferably a silicone elastomer (column 6, lines 59-62), i.e. a cushion layer. Viton<sup>®</sup> A is a suitable fluorocarbon copolymer (column 4, lines 44-55 and Examples 1-4 and 7). According to the instant specification, Viton<sup>®</sup> A is a copolymer comprising 75% vinylidene fluoride and 25% hexafluoropropylene (see page 12, lines 6-10). The fluorocarbon curing agent is preferably a nucleophilic addition curing system, such as one comprising a bisphenol agent (column 4, line 66-column 5, line 15). The fluorocarbon copolymer may further contain alumina (i.e. aluminum oxide) and acid acceptor metal oxides or hydroxides, such as magnesium oxide and calcium hydroxide. In the embodiment of Example 5, 9 parts by weight of a combination of magnesium

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oxide and calcium hydroxide were used per 100 parts by weight of fluorocarbon copolymer. The poly(C<sub>1-6</sub> alkyl)siloxane is preferably a heat-curable silicone (column 5, lines 40-41). A preferred silicone comprises a polydimethylsiloxane having a number average molecular weight of between 20,000 and 30,000 and a polymethylsiloxane comprising monofunctional and tetrafunctional siloxane repeating units having a number average molecular weight of 1,000 to 10,000 (column 5, lines 56-65). An exemplary silicone is SFR-100 (used in the Examples of Chen et al. ('971) as well as the Examples of the instant application) which comprises a silanol- or trimethylsilyl- terminated polymethylsiloxane and is a liquid blend comprising 60-80 wt% of a difunctional polydimethylsiloxane having a number average molecular weight of about 150,000 and 20-40 wt% of a polytrimethylsilyl silicate resin having monofunctional and tetrafunctional repeating units in an average ratio of 0.8-1 to 1 and a number average molecular weight of about 2,200 (column 5, line 66-column 4, line 11).

While Chen et al. ('971) teach the addition of aluminum oxide to the fluorocarbon copolymer composition, the reference is silent with respect to the amount of aluminum oxide that may be used.

Chen et al. ('759) is directed to a fuser member comprising a fluoroelastomer layer (column 2, lines 12-24). Viton<sup>®</sup> A is a suitable fluoroelastomer (column 3, lines 53-65). The fluoroelastomer may include an inert filler such as alumina to provide added strength and abrasion resistance (column 4, lines 32-40).

Chen et al. ('759) illustrate that alumina filler in fluoroelastomer is used to provide added strength and abrasion resistance, i.e. the concentration of alumina is a results effective variable. Therefore, it would have been obvious to one having ordinary skill in the art at the time the



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invention was made to optimize the amount of alumina, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

Therefore, the invention of claim 3 would have been obvious to one of ordinary skill in the art at the time the invention was made.

### ***Conclusion***

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (703) 305-0503. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non after-final correspondences and (703) 872-9311 for after-final correspondences.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

REZ

Ramsey Zacharia

10/19/01



Paul Thibodeau  
Supervisory Patent Examiner  
Technology Center 1700